(11) (A) No. 1131551

(45) ISSUED 820914

(52) CLASS 144-115

(51) INT. CL. ^{3} B27C 1/08

(19) (CA) **CANADIAN PATENT** (12)

(54) MACHINE FOR HEWING SQUARE TIMBERS

(72) Rautio, Kauko,
Finland

(21) APPLICATION No. 367,363

(22) FILED 801222

No. OF CLAIMS 4

Abstract

A machine for hewing square timbers (1) from round trunks, with the aid of rotary cutters (2,3), before which there is a set of guiding rollers (4) for the trunk to be hewn. The machine comprises two cutter pairs (2,3) disposed immediately after each other and the axes of which form an angle of 90^{o}, and the set of trunk guiding rollers (4) consists of at least one pair of pulling wheels (5) with padded circumference and of a thereafter disposed track-resembling pair of sets of pulling rollers (6), all of which together move in transversal direction following the thickness of the trunk that is being hewn, parallel, feeding forward the trunk that is being hewn.

Kauko Rautio
Mäntyharju
Finland

1131551

Improvement in a machine for hewing square timbers

The present invention concerns a machine for hewing square timbers from round trunks, with the aid of rotary cutters, before which there is a set of guiding rolls for the the trunk to be hewn.

The set of guiding rolls consists, as a rule, of a roller pair, as has been disclosed in the Finnish Patent No. 37065. But when the trunk to be hewn is conducted through rotary cutters, on pair of rollers is not enough. If the trunk to be hewn has even minor uneven portions, or if it presents even minor bends, the trunk will be guided in accordance with these uneven portions, whereby the finished hewn square timber will not be straight and it will rather conform to the uneven portions of the unhewn trunk.

The object of the invention is to eliminate the drawback mentioned and to provide a new type of machine for hewing square timbers in which the uneven portions of the trunk have no influence on the quality of the square timber. The machine of the invention is characterized in that the machine comprises two cutter pairs disposed immediately after each other, their axes forming with each other an angle of 90°, and that the set of trunk guiding rollers consists of at least one pair of pulling wheels with padded dircumference and of a track-resembling pair of pulling roller sets, all of them together *

moving in transversal direction following the thickness of the trunk that is being hewn, parallel, feeding the trunk that is being hewn in forward direction.

With the aid of the invention, the trunk that is being hewn is kept throughout the feeding on one and the same path because the set of pulling rollers gives support to the trunk over a very extensive range. The pairs of cutters placed after each other also support and guide the trunk during the feed process. It follows that the square timber will be of first grade.

An advantageous embodiment of the invention is characterized in that in each half of the set of guiding rollers the pulling wheel and the set of pulling rollers have been rotatably carried in one frame beam, that both ends of the frame beam have been journalled in bell cranks, which in their turn have been mutually connected by a linkage rod so that a linkage quadrangle is formed, whereby the frame beam with its pulling wheels and sets of pulling rollers moves in transversal direction, following the thickness of the trunk without changing its direction. This is a simple and favourable design solution by which the pulling wheel and the set of pulling rollers keeps its direction unchanged, whereby the trunk lying between the halves of the set of guiding rollers is constantly accurately guided on the proper path.

Another embodiment of the invention is characterized in that the pulling wheel and the set of pulling rollers have been mutually connected by a chain transmission. With proper transmission ratio, correct and uniform feeding of the trunk to be hewn is obtained both from the pulling wheel and from the set of pulling rollers.

One embodiment of the invention is further characterized in that both halves of the set of guiding rollers have between the pulling wheel and the set of guiding rollers, a pre-smoothing cutter, which removes any uneven portions found on the trunk, such as branch stumps for instance. The padded pulling wheel yields elastically in the case that a projecting branch stump hits it. The pre-smoothing cutter ensures that no factor deranging the direction of feed can occur at the pair of pulling roller sets.

The invention is described in the following with the aid of an example, with reference being made to the attached drawing, wherein:-

Fig. 1 presents a square timber hewing machine according to the invention, in elevational view and partly sectioned.

Fig. 2 shows the section carried along the line II-II in Fig. 1.

The machine for hewing square timbers 1 comprises two consecutive cutter pairs 2,3, through which the trunk is fed forward. Before the cutter pairs 2,3 lies a set of guiding rollers 4 for the trunk to be hewn, consisting of one pair of pulling wheels 5 with padded circumference and of a track-like pair of pulling rollers 6 disposed thereafter. All these may move in transversal direction, together, following the thickness of the trunk to be hewn and parallel, feeding forward the trunk to be hewn. In each half of the set of guiding rollers 4, the pulling wheel 5 and the set of pulling rollers 6 has been rotatably carried in one and the same frame beam 7. Both ends of the frame beam 7 have been journalled in bell cranks 8, which have in their turn at the points 9 been journalled to the frame of the machine. The opposite ends of the bell cranks 8 have been mutually connected by a linkage rod 10 so that a linkage quadrangle 11,12,13,14 is formed, whereby the frame beam 7 with its pulling wheels 5 and sets of guiding rollers 6 moves, following the thickness of the trunk to be hewn, without changing direction. The pulling wheel 5 and the set of guiding rollers 6 have been mutually connected by means of a chain transmission 15.

Both halves of the set of guiding rollers 4 have between the pulling wheel 5 and the set of pulling rollers 6, a pre-smoothing cutter 16, which removes any uneven portions, such as stumps after branches. The set of guiding rollers 4 is urged against the trunk to be hewn with the aid of a pressure cylinder 17. The centering of the set of guiding rollers is adjusted with the aid of linkage levers 18 and the control rod 21 pivoted between their common pivot point 19 and the frame 20 of the machine.

After the cutter pairs 2,3 there are for the square timber, guiding rollers 22,23, in connection with which, or after which, may be mounted e.g. circular saw blades (not depicted), by which if desired the square timber is split into two or several parts.

With the aid of the set of guiding rollers 4 of the square timber hewing machine, the trunk to be hewn is kept throughout the feed process on one and the same path, because the set of guiding rollers supports the trunk over a very extensive range. It follows that the quality of the square timber is invariably first rate.

It is obvious to a person skilled in the art that different embodiments of the invention may vary within the scope of the claims presented below.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. Improvement in a machine for hewing square timbers from round trunks, with the aid of rotary cutters, before which there is a set of guiding rollers for the trunk to be hewn, wherein the improvement comprises that the machine has two cutter pairs disposed immediately after each other and the axes of which form an angle of 90^{o}, and that the set of trunk guiding rollers consists of at least one pair of pulling wheels with padded circumference and of a thereafter disposed track-resembling pair of sets of pulling rollers, all of which together move in transversal direction following the thickness of the trunk that is being hewn, parallel, feeding forward the trunk that is being hewn.

2. Machine according to claim 1, characterized in that in each half of the set of guiding rollers the pulling wheel and the set of pulling rollers have been rotatably carried in one and the same fram beam, that both ends of the frame have been journalled in bell cranks, which in their turn have been journalled to the frame of the machine, and that the opposite ends of the bell cranks have been mutually connected by linkage rods so that a linkage quadrangle is formed, whereby the frame beam with its pulling wheel and set of pulling rollers moves in transversal direction, following the thickness of the trunk that is being hewn, without changing direction.

3. A machine according to claim 1, characterized in that the pulling wheel and the set of pulling rollers have been mutually connected by a chain transmission.

4. A machine according to claim 1, characterized in that in each half of the set of guiding rollers there is between the pulling wheel and the set of pulling rollers, a pre-smoothing cutter, which removes any uneven portions occurring on the trunk, such as branch stumps for instance.

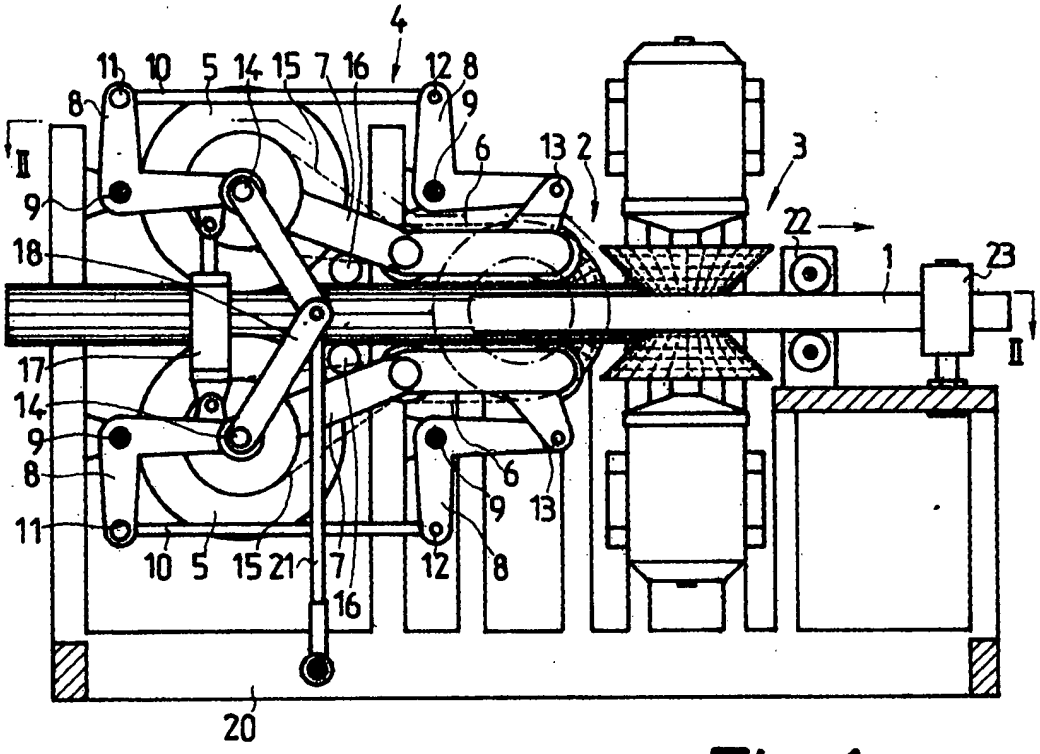

Fig.1

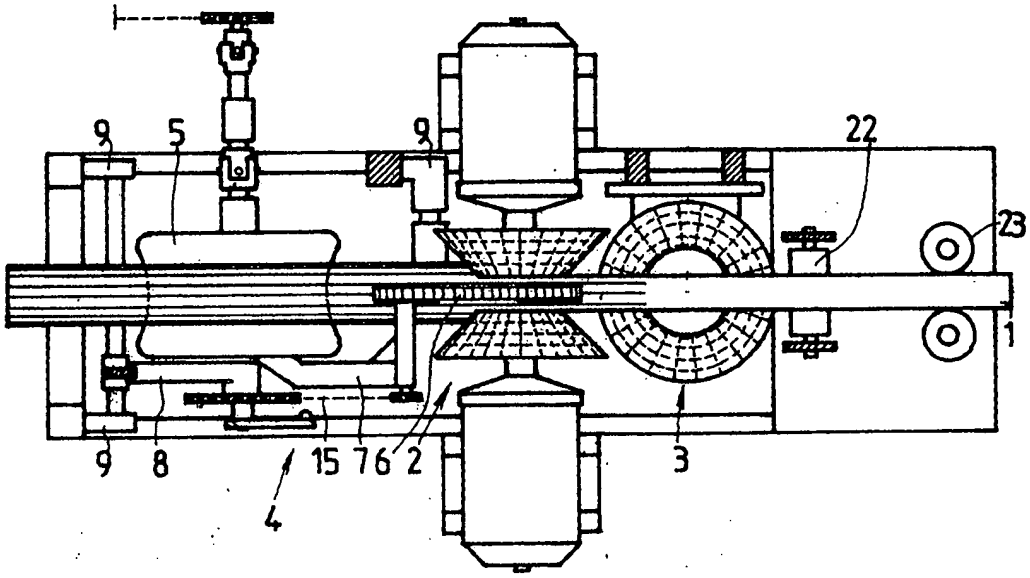

Fig.2

This Page is Inserted by IFW Indexing and Scanning Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ BLACK BORDERS
- ☐ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☑ FADED TEXT OR DRAWING
- ☐ BLURRED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☐ COLOR OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☑ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.
As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.